

Potato Cultivation

By RAO SAHIB K. NANJUNDIAH B. A., B. Com., B. L.

Member, Executive Committee, Madras Provincial

Agricultural Association & Secretary, Coimbatore District Association.

Potato is being cultivated for food in many countries. The total production of potatoes in the world is 6,010 million maunds which is twice as much as that of wheat, the main food grain of the west and twice that of rice, the staple food of the east.

The ancient Greeks and the Romans who were familiar with the growing of most of the grains and vegetables known to Europe do not however seem to have grown potatoes. For at least over a thousand years before America was discovered by the Europeans, the potato seems to have been cultivated in Peru, Chili and other parts of South America. During the sixteenth century the potato entered the European continent through Spain which had already established contact with America, and from Spain it was introduced to Vienna, London and other centres in Europe. The sages of India who had developed a special aptitude for living on vegetables, fruits and roots made no mention of the potato as a food material.

The cultivation of the potato in India does not go beyond about 100 years. But within this comparatively short period it has become more popular than many other vegetables with a greater antiquity. As far as present knowledge goes it is the English that introduced the potato into this country. That the potato was introduced into India from the Cape of Good Hope is the account of Dr. Ainslie who relies upon the report of J. F. Duthie. It was Major Young who commenced the cultivation at Mussoori and it was Capt. Townsend who improved the quality. From 1839 the potato has been cultivated in the plains and hills of many parts of India. Four-fifths of India's potato cultivation is in the U. P., Behar, Bengal and Assam. The areas around Poona in the Bombay Presidency and that near Bangalore on the Mysore Plateau and on the Nilgiri Hills, besides a small area on the Kodaikanal produce the other fifth.

There being no separate statistics regarding the acreage under potatoes it has got to be gathered with the help of experienced growers. From such computation it is estimated that between 1935 to 1939 the area under potato in India was about 4,48,700 acres per annum comprising 0.2 % of the average net sown area under all crops. Of this about 4,22,100 acres lie in the plains and about 46,600 in the hills. In the plains a summer and a winter crop are raised and 95 % is winter crop and 5 % is grown during summer. On the hills the summer crop is more common but on the

* Radio Talk in Tamil dated 22-10-1944 from A. I. Radio, Trichy, Translated.

Nilgiris, where the winter is not very severe, two or three crops of potatoes per annum are raised. During 1938—39 the total area under potato was 4,68,700 which shows an increase of 11.08 per cent on the total acreage of 1930-31. Further during the last fifteen years the area under potatoes has increased on account of the large-scale use of scientific fertilisers. Apart from the sale by fertiliser firms a large quantity of artificial fertiliser is distributed by the co-operative societies attached to the Nilgiri-Coimbatore Co-operative Central Bank. For some time past due to the efforts of the Agricultural Research Station established by Government at Nanjanad, varieties suitable to the hills like Great Scot, Ben Cruschen have been popularised among the ryots and grown extensively. Facilities for exporting the same to the Provinces of Bombay, Bengal, Orissa and other places have also been provided.

It is estimated that before the present war India's production of potatoes was valued at Rs. 9½ crores and yet it is deplorable that no reliable statistics are mentioned as in the case of wheat, rice etc., to ascertain the yield per acre. It is however estimated that the Indian average works out at 109 maunds while those of Belgium, England and Germany before the war were at 224, 183 and 178 maunds respectively. The total production of India at the commencement of the war has been estimated at 4,91,02,700 maunds per annum. In addition to this before the war 11,55,738 maunds of potatoes were being imported into India from Burma, Italy, Kenya, England, Netherlands, Japan and South Africa. A small quantity was also being exported to Ceylon, Iraq and other places from Mysore, Madras, Bombay and Sind. The potatoes grown in Bombay Presidency and the Mysore area are considered to be inferior to the foreign imported variety. But the potatoes grown on the hills are deemed to be superior to the imported commodity. Hence, if the area under potatoes on the hills is augmented a sum of about Rs. 33,00,000 being the value of the stock imported from other countries will be a saving to this country. Further, if through a process of dehydration or cold storage the potato could be preserved from the period when it is cheap due to a glut in the market till the season when the imported variety comes to the Indian market the need for import will diminish. Before the war Italy was exporting to this country a decent quantity of seed potatoes. But, the seed could not hold on for long. Further that the seed grown in the hilly tracts of our country could not only stand the climate better but could also retain purity of the seed for more number of years is the view of some. The Department of Agriculture, Madras has accordingly undertaken very recently to supply some quantity of seed potatoes from Nilgiris to Bengal, Bihar, Sind and other Provinces.

Schemes like the above can be successfully worked out only if the state of the cultivator is satisfactory. Reliable statistics regarding the cost of cultivation, the economic condition of the grower and such other particulars relating to potato cultivation in India are neither available nor are there associations, bureaux or other agencies who have investigated

into such questions. The Director of Industries, Government of Madras who sends the market reports about several other commodities for announcement in the All India Radio will be doing a service to a large section of the public if he could include the price of potato in the list. Unlike traders and dealers in many other commodities who have built up trade associations on an All India or Provincial basis even the dealers in potato have not built up any such associations for the advancement of the trade in potatoes. Hence it is only as a cultivator of the Nilgiris that I could speak a few facts about the condition of the ryots on the hills. Further it is not easy to gauge with any certainty as to changes that will come off in these war-time conditions. It is no doubt true that the area under potatoes on the Nilgiris is increasing and that the potato is being sold at a fairly high price. But, due to a variety of reasons the ryot has not been able to reap the fruits of this expansion or high prices. Unlike other crops the potato crop involves a very heavy initial outlay of capital at the time of sowing and in the Nilgiris the rate of interest has always been high. The price of good seeds, the cost of scientific fertilisers, the transport and labour charges have all risen by many times over the pre-war level. But, the yield per acre is falling. If notwithstanding this fact the cultivated area is increasing day by day it is no exaggeration to say that the ryot has never cultivated the habit of keeping accounts for the cultivation expense and striking out a profit and loss statement of his cultivation. The fixation of price, the control of trade on the hills as well as exporting outside the district are in the hands of the Potato Controller appointed by the Government. Subject to the general policy relating to the allotment of quotas for the military and the civil supply based on the estimate of the Potato Controller the actual issue of permits as well as the movement of the commodity from the Nilgiris to different places is controlled by the issue of permits by the Potato Controller. During times of war it is inevitable that there should be a certain amount of control taking the needs of the military and the civil population, the means of transport and the stock of commodity available for distribution. But, the difficulty consists in selecting potatoes of the size above $1\frac{1}{2}$ " thickness for military and dehydration purposes at a particular controlled price and treating the rest as 'rejects'. If permits are liberally issued for these rejects and the same are despatched to different parts of this country the ryots will not be put to loss. During the last two years the ryots complain that due to the lack of properly co-ordinated system of control in exporting from the hills a large quantity of potatoes had to rot. The consumers of potatoes throughout the presidency on the other hand have been crying hoarse that there is no proper supply of potatoes at the consuming centres. During the last few months a purchase depot financed by the government under the polling system has been functioning at Ootacamund. The Co-operative Marketing Society has also been consigning some quantity of the members' stock of potatoes. But, unless the quota for civil supplies is increased and more permits are issued the hardship of the ryots cannot be redressed by these two institutions. The Potato

growers' Association of the Nilgiris has often been urging upon the Government that the licenses to deal in potato has to be issued to the ryots and that the permits should like the tea export license be issued to the growers. The best way of helping the ryots is for the government to take up the manufacture of scientific fertilisers and to encourage as far as possible the production and distribution of potatoes through co-operative agencies. When the Government of Madras devices such a scheme and puts it into operation the potato growers are sure to co-operate in cultivating potatoes to the extent to which the same are required for guaranteeing a balanced diet to the masses of this country.

The potato in India is at present consumed only as a food and not used for any industrial purposes. The average *per capita* consumption of potatoes for India works out at 8'06 lbs. per annum. For the Presidency of Madras the same works out only at 0'2 lb. With a view to utilise the potato to industrial purposes a starch factory was started at Farukabad. In spite of this factory being located at a place producing a large quantity of potatoes the company could not be run as a profitable concern. Large stocks of costly imports like farina—largely used in textile manufacture for sizing yarns in textile mills, laundry purposes, preparation of confectionery, ice cream etc. alcohol, starch glucose, dextrine could be extracted locally from potatoes. But the starch content of the potato now grown in India is very low. In fact it is only a fourth of that of rice. Hence new varieties of potatoes with richer starch contents and with higher yield so as to bring down the cost of the raw product have to be cultivated with a view to encourage the use of potatoes for industrial purposes.

The use of the potato as human food in India is on the increase and there is still scope for augmenting the same. Unlike some other vegetables the potato can be used with most types of food. A good flavour and the ease with which it could be cooked have popularised it among all sections of the Indians as well as the Europeans in this country. The Europeans cook the potato in numerous ways as a table food. Further as a vegetable that could stand transport and due to its availability almost throughout the year the potato is fairly popular. A section of orthodox Hindus had their objections to the potato being used as an article of food on religious occasions. But, now that it has been included in the list of articles which can be taken as a root even during fasts by the Hindus it is used by all sections of the population.

The mode of planting and cultivation differs from province to province. Research in this direction is now confined to the Agricultural Research Station at Nanjanad in the Nilgiris and to a very small extent at the sub-station at Sinla. After a lot of research and experiment according to the Nanjanad farm tubers $1\frac{1}{2}$ to 2 oz. in weight being stored carefully for two to three months until they sprout would form the best seed. These may be planted at 9 inches from each other in furrows dug up at $2\frac{1}{4}$ feet apart and covered up with fertiliser and earth. If this mode is adopted an acre would require eight bags of seeds each bag weighing about $2\frac{1}{2}$ maunds. Weeding

and hoeing in the second month and earthing to support the plants in the third month will enable the crop to be ready for harvest in the fifth month. The yield in our country is low when compared with the other countries because proper attention is not paid to the quality of the seed. A number of experimental and research farms as in Nanjanad have to be brought into existence and the co-operation of the ryot harnessed for multiplication of good quality seed. Again if a system of getting seeds examined as to their fitness for planting and certified by the proper authorities as is prevalent in the U. S. A., England, Germany and other parts is introduced, the yield in this country could also be increased.

Research Notes

Palmyra leaves as substitute for paper Any Agricultural Research Station or Crop Breeding Station requires a very large number of small labels every year. Normally thick paper cut to size and treated with white paraffin is being largely used. Due to acute shortage of this commodity a search for other cheap substitutes was made. Palmyra leaves properly dried and cut to size was found to answer the purpose very well. This short note is written mainly with the object of making known to other workers the desirability of using palmyra leaves both as a war time economy and post-war substitute.

The labels are best used without either separating the two lamina halves or removing the midrib. Impressions left by writing with hard black lead pencil are permanent. Black moulds during dewey and rainy weather are likely to develop over the leaf surface and render the writing indistinct. A dip in a light solution of copper sulphate before tying up may prevent the fungus growth. Punching holes on the far end from the midrib helps the labels to with-stand the tearing action of the wind during periods of high velocity.

L. Neelakantan,

Assistant in Cotton, Agricultural Research Station, Koilpatti.

Abstracts.

Forecasting and estimation of crop yields. (By V. G. Pansu and R. J. Kalamkar, *Current Science*, Vol. 13, No. 5, Pp. 120-124, May, 1944) Forecasts and estimates of the yield of commercial crops like cotton, jute, or sugarcane are of great importance to trade and industry, because the availability of these raw materials is the basis of all calculations of manufacturing processes. With the increasing emphasis on "planned" production, accurate forecasts and estimates are a paramount need for ensuring a sufficiency of food grains and their equitable distribution over large areas. Where the tax on agricultural land forms, as in India, the principal source of Government revenue, the administration is specially interested in the forecasting and estimation of crop yields.

Forecasts are estimates made while the crops still standing in the field, of the probable production, whereas the actual production is estimated at or soon after harvest. Estimates of production involve a knowledge of the average yield per acre as well as the total acreage sown with the crop. In England and America, crop forecasts are made by a large number of voluntary reporters who are in close touch with the farming of their respective areas. In America crop reporters are required to estimate both the yield per acre and the acreage under the crop, but in England, acreage figures are obtainable accurately, since compulsory returns for all holdings are made to crop reporters. In India too